

WHAT IS CLAIMED IS:

1. An isolated polynucleotide comprising a nucleotide sequence encoding a polypeptide, the amino acid sequence of which is at least 95% identical to a reference amino acid sequence selected from the group consisting of:

- (a) amino acids 1 to 118 of Figure 3;
- (b) amino acids 1 to 119 of Figure 3;
- (c) amino acids 1 to 120 of Figure 3;
- (d) amino acids 1 to 121 of Figure 3;
- (e) amino acids 119 to 618 of Figure 3;
- (f) amino acids 120 to 618 of Figure 3;
- (g) amino acids 121 to 618 of Figure 3;
- (h) amino acids 122 to 618 of Figure 3;
- (i) amino acids 34 to 147 of Figure 3;
- (j) amino acids 35 to 154 of Figure 3;
- (k) amino acids 34 to 154 of Figure 3;
- (l) amino acids 1 to 154 of Figure 3;
- (m) amino acids 155-618 of Figure 3 and
- (n) amino acids 1-618 of Figure 3.

2. The polynucleotide of claim 1 which is DNA.

3. The polynucleotide of claim 1 which is RNA.

4. The polynucleotide of claim 1, further comprising a heterologous polynucleotide.

5. The polynucleotide of claim 4, wherein said heterologous polynucleotide encodes a heterologous polypeptide.

6. The polynucleotide of claim 5, wherein said heterologous polynucleotide is positioned at the 3' of said nucleotide sequence.

7. A vector comprising the polynucleotide of any one of claims 1-6.

8. The vector of claim 7, wherein said polynucleotide is operably linked to a heterologous regulatory polynucleotide.

9. A host cell comprising the polynucleotide of any one of claims 1-6.

10. The host cell of claim 9, wherein said isolated polynucleotide is operably linked to a heterologous regulatory polynucleotide.

11. A method of producing a protein that comprises culturing the host cell of claim 10 under conditions such that said protein is expressed, and recovering said protein.

12. An isolated C5-epimerase polypeptide, the amino acid sequence of which is at least 95% identical to a sequence selected from the group consisting of:

- (a) amino acids 1 to 118 of Figure 3;
- (b) amino acids 1 to 119 of Figure 3;
- (c) amino acids 1 to 120 of Figure 3;
- (d) amino acids 1 to 121 of Figure 3;
- (e) amino acids 119 to 618 of Figure 3;
- (f) amino acids 120 to 618 of Figure 3;
- (g) amino acids 121 to 618 of Figure 3;
- (h) amino acids 122 to 618 of Figure 3;
- (i) amino acids 34 to 147 of Figure 3;
- (j) amino acids 35 to 154 of Figure 3;

- (k) amino acids 34 to 154 of Figure 3;
- (l) amino acids 1 to 154 of Figure 3;
- (m) amino acids 155-618 of Figure 3; and
- (n) amino acids 1-618 of Figure 3.

13. The isolated polypeptide of claim 12, which is produced or contained in a recombinant host cell.

14. The isolated polypeptide of claim 13, wherein said recombinant host cell is an insect cell.

15. A method of increasing the activity of a C5-epimerase, said method comprising:

(a) providing a first polynucleotide comprising a nucleotide sequence encoding a polypeptide, the amino acid sequence of which is at least 80% identical to a reference amino acid sequence selected from the group consisting of amino acids 35 to 154 of Figure 3 and amino acids 34 to 154 of Figure 3;

(b) attaching said first polynucleotide of (a) to a second polynucleotide encoding a C5-epimerase; and

(c) expressing the fusion polynucleotide.

16. The method of claim 15, wherein said first polynucleotide comprises a nucleotide sequence encoding a polypeptide, the amino acid sequence of which is amino acids 35 to 154 of Figure 3.

17. The method of claim 15, wherein said first polynucleotide comprises a nucleotide sequence encoding a polypeptide, the amino acid sequence of which is amino acids 34 to 154 of Figure 3.

18. The method of any one of claims 15-17, wherein said second polynucleotide encoding a C5-epimerase encodes bovine C5-epimerase.

18. The method of any one of claims 15-17, wherein said second polynucleotide encoding a C5-epimerase encodes bovine C5-epimerase.